

ABSTRACT OF THE DISCLOSURE

A thin film device includes a metal sulfide layer formed on a single crystal silicon substrate by epitaxial growth; and a compound thin film with ionic bonding, which is formed on the metal sulfide layer by epitaxial growth.

Alternatively, a thin film device includes a metal sulfide layer formed on a single crystal silicon substrate by epitaxial growth; and at least two compound thin films with ionic bonding, which are formed on the metal sulfide layer by epitaxial growth. For example, $(11\bar{2}0)$ surface AlN/MnS/Si (100) thin films formed by successively stacking a MnS layer (about 50 nm thick) and an AlN layer (about 1000 nm thick) on a single crystal Si (100) substrate, are used as a substrate, and a $(11\bar{2}0)$ surface GaN layer (about 100 nm thick) operating as a light emitting layer is formed on the substrate, thereby fabricating a thin film device.